UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/871,353	05/30/2001	Franco Cipriani	13706	9560

23676 7590 07/22/2003

SHELDON & MAK, INC
225 SOUTH LAKE AVENUE
9TH FLOOR
PASADENA, CA 91101

EXAMINER
TRAN, MY CHAU T

ART UNIT	PAPER NUMBER
1639	

DATE MAILED: 07/22/2003 14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/871,353	CIPRIANI ET AL.	
	Examiner	Art Unit	
	My-Chau T. Tran	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the corresp ndence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 May 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7 and 14-26* is/are pending in the application.

4a) Of the above claim(s) *14-18* is/are withdrawn from consideration.

5)☒ Claim(s) *19-24 and 26* is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☒ Claim(s) *5-7 and 25* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Applicant's amendment filed 5/15/03 in Paper No. 13 is acknowledged and entered. Claims 8-13 are canceled by the amendment. Claims 1-7 are amended by the amendment. Claims 14-26 are added by the amendment.

2. Claims 1-7 and 14-26 are pending.

Election/Restrictions

3. Claims 14-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions, because Claims 14-18 are related to Claims 8-13, which were withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions in the previous Office Action of Paper No. 11. Election (i.e. Claims 1-7 of Group I) was made **without** traverse in Paper No. 10.

However, it is noted that applicant has indicated that should patentable patent matter be found in the elected claims (Claims 1-7) applicant reserves the right to rejoin one or more of the non-elected claims 8-13, which is now claims 14-18, in Paper No. 10.

Applicants are advised that in accordance with the court decisions in *In re Ochiai,* {71 F.3d 1565, 37 USPQ2d 1127 (Fed. Cir. 1995)} and *In re Brouwer* {77 F.3d 422, 37 USPQ2d 1663 (Fed. Cir. 1996)}, in the event that a product claim (Claims 1-7) is found to be allowable, a method of use claim, ***which is of the same scope as the allowed product claim***, may be rejoined with the allowed product claim.

4. Claims 1-7 and 19-26 are treated on the merit in this Office Action.

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Maintained Rejections

Claim Rejections - 35 USC § 102

6. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Berlin et al. (*J. Am. Chem. Soc.*, **1998**, 120(51):13453-13460).

Berlin et al. disclosed a bithiophene and terthiophene molecules (thiophene oligomers) that is terminated with the carboxylic moiety (functional group) (ref. #4, and 5 of Chart 1, pg. 13454; pg. 13454, left col., lines 1-6) (refer to claims 1-4). Both thiophene oligomers are excitable in the UV-visible region (pg. 13457, left col., lines 52-60). The linear bithiophene can be coupled to polythiophene (organic molecules). Therefore, the bithiophene and terthiophene molecules of Berlin et al. anticipate the presently claimed thiophene oligomers.

Response to Arguments

7. Applicant's argument(s) directed to the above rejection under 35 USC 102(b) as being anticipated by Berlin et al. for claims 1-4 were considered but they are not persuasive for the following reasons.

Applicant contends that "[t]hat the limitation "biological molecules" necessarily means that the molecules have biological activity whereas the limitation "organic molecules", deleted from claim 1 by this amendment, means that the molecules do not have biological activity" and

that "[B]erlin et al. does not disclose the use of thiophene oligomers which have at least one functional group able to form a covalent bond with biological molecules, as opposed to organic molecules without biological activity."

Applicant's arguments are not convincing since the term of "organic molecules" would encompasses the term "biological molecules". Therefore, the limitation "organic molecules" would also include molecules that have biological activity.

Berlin et al. do teach the presently claimed thiophene oligomers. The presently claimed thiophene oligomers recite a structure that comprise of thiophene rings and a functional group such as COOH. Berlin et al. disclosed a bithiophene and terthiophene molecules (thiophene oligomers) that is terminated with the carboxylic moiety (functional group) (ref. #4, and 5 of Chart 1, pg. 13454; pg. 13454, left col., lines 1-6) (refer to claims 1-4). Further, the limitation wherein the "*functional group able to form a covalent bond with biological molecules*" does not bear any patentable weight. "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990) (see MPEP 2112.01). That is the property of the functional group in which it is "*able to form a covalent bond with biological molecules*" is not germane to the issue of patentability of the composition itself. Therefore the thiophene oligomers of Berlin et al. anticipates the presently claimed thiophene oligomers because Berlin et al. teach all the structural limitations of the presently claimed thiophene oligomers, which are a thiophene rings and a functional group such as COOH.

Claim Rejections - 35 USC § 103

8. Claims 1-4 are rejected under 35.U.S.C. 103(a) as being unpatentable over Berlin et al. (*J. Am. Chem. Soc.*, **1998**, 120(51):13453-13460) in view of Roncucci et al. (US Patent 5,869,051).

Berlin et al. disclosed a bithiophene and terthiophene molecules (thiophene oligomers) that is terminated with the carboxylic moiety (functional group) (ref. #4, and 5 of Chart 1, pg. 13454; pg. 13454, left col., lines 1-6) (refer to claims 1-4). Both thiophene oligomers are excitable in the UV-visible region (pg. 13457, left col., lines 52-60). The linear bithiophene can be coupled to polythiophene (organic molecules).

The thiophene oligomers of Berlin et al. do not expressly disclose that the thiophene oligomers can form covalent bond with biological molecules.

Roncucci et al. discloses a terthiophene (col. 1, lines 60-64) that is derivatized with functional group that is able to react with amino group of peptides or proteins (biological molecules) (col. 2, lines 13). The functional group includes CHO and COOH (col. 3, Example 1; col. 4, Example 3). These conjugates would be able to work out a biocidal action on various kinds of cells once activated with radiation in near UV (col. 1, lines 12-15).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include forming a covalent bond between the thiophene oligomer and biological molecule as taught by Roncucci et al. in the thiophene oligomers of Berlin et al. One of ordinary skill in the art would have been motivated to include a covalent bond between the thiophene oligomer and biological molecule in the thiophene oligomers of Berlin et al. for the

advantage of providing a conjugate that would be able to work out a biocidal action on various kinds of cells once activated with radiation in near UV (Roncucci: col. 1, lines 12-15). Since both Berlin et al. and Roncucci et al. disclose the same type of thiophene oligomer, which is terthiophene (Berlin: pg. 13454, ref. #4, and 5 of Chart 1; Roncucci: col. 1, lines 60-64).

Response to Arguments

9. Applicant's argument(s) directed to the above rejection under 35 USC 103(a) as being unpatentable over Berlin et al. in view of Roncucci et al. for claims 1-4 were considered but they are not persuasive for the following reasons.

Applicant alleges that "[R]oncucci et al. reference teaches using thiophene oligomers to mark biological molecules in such a manner that their biological activity is or can be altered."

Applicant's arguments are not convincing since Roncucci et al. reference also teaches using thiophene oligomers to mark the biological molecules that would not alter the biological activity of the biological molecules (col. 11, lines 38-45; examples 19-21). Therefore, the thiophene oligomers of Berlin et al. and Roncucci et al. are obvious over the presently claimed thiophene oligomers.

Additionally, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

10. Claims 5-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

New Rejections – Necessitated by Amendment

Claim Objections

11. Newly added Claim 25 by the amendment is objected to because of the following informalities: Claim 25 is improperly dependent on Claim 17 because it should be dependent on Claim 22. Appropriate correction is required.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. The amended Claim 1, and Claims 2-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Berlin et al. (*J. Am. Chem. Soc.*, **1998**, 120(51):13453-13460).

Berlin et al. disclosed a bithiophene and terthiophene molecules (thiophene oligomers) that is terminated with the carboxylic moiety (functional group) (ref. #4, and 5 of Chart 1, pg. 13454; pg. 13454, left col., lines 1-6) (refer to claims 1-4). Both thiophene oligomers are excitable in the UV-visible region (pg. 13457, left col., lines 52-60). The linear bithiophene can be coupled to polythiophene (organic molecules). Therefore, the bithiophene and terthiophene molecules of Berlin et al. anticipate the presently claimed thiophene oligomers.

Additionally, the added limitation of "*without altering the biological activity of the biological molecules*" to claim 1 is considered a functional limitation of the claimed composition

that does not bear any patentable weight. *"Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990) (see MPEP 2112.01).*

Allowable Subject Matter

14. Claims 19-24 and 26 are allowed. The claims are allowed for the reason that the prior art of Berlin et al. (*J. Am. Chem. Soc.*, **1998**, 120(51):13453-13460) and Roncucci et al. (US Patent 5,869,051) do not teach or fairly suggest the specific claimed limitation of Claim 19 wherein the functional group of the thiophene oligonucleotide is NCS.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to My-Chau T. Tran whose telephone number is 703-305-6999. The examiner is on ***Increased Flex Schedule*** and can normally be reached on Monday: 8:00-2:30; Tuesday-Thursday: 7:30-5:00; Friday: 8:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew J. Wang can be reached on 703-306-3217. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9307 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1123.

mct
July 21, 2003

PADMASHRI PONNALURI
PRIMARY EXAMINER